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Summary of OPI Requirements For a Data Warehouse, Student Information System, Individualized Education Program and an E-Grants Management System

This document contains OPI's preliminary assessment of the requirements for each of the three systems mentioned below. The following requirements are intended to assist vendors who are participating in the Office of Public Instruction's (OPI) vendor demo days for any of these systems. The vendor demo days are being used to gain further knowledge of the features and functionality available in these systems and a formal RFP will be released at a later date.

The Montana Office of Public Instruction (OPI) desires to obtain and install a web-enabled, single source integrated Student Information System (SIS) that accumulates student data at the state level and also includes management of individualized education program (IEP) for students with disabilities. The data accumulated in these systems would be stored in a data warehouse. The student information system will enable the OPI to assign unique student ID numbers to students and to provide for the transfer of data with students as they move from school to school within local education agencies (LEAs) and among LEAs throughout the state. The OPI's preference is to have one system that includes both SIS and IEP functions. Separate systems will be considered if there is the ability to easily transfer data between the systems. However, preference will be given to those proposals with an integrated system.

In addition to the above, the OPI is also seeking a web-enabled electronic grants management system (E-grants). This system will include the application initiation, completion, submission, review, approval, and amendment process. The E-grant system should support the grant application process from allocation of funds and application for funding through payment accountability, reporting to the grantor, and grant closeout for both state and federal grants. In so doing, the system will 1) provide school applicants knowledge of grant resources available to them in support of their District Improvement Plans and Consolidated NCLB Applications planning, 2) improve communication between OPI grants program staff and applicants, and 3) increase the efficiency of the grants process for both applicants and OPI.

The systems must store data in a secure, centralized system for data collection and reporting. They must also have sufficient capability to allow for storage of historical records. Please see the specific requirements listed below for more detailed information on these systems.

General Requirements for all Systems:

Each of the systems must:

- 1) Comply with School Interoperability Framework (SIF) 1.5 or greater
- 2) Comply with federal reporting requirements (i.e., EDEN, CCD, NCLB, ESEA, etc.)
- 3) Comply with Section 508 standards (accessibility for disabled people)
- 4) Be able to pass information/ data to and from the data warehouse
- 5) Consist of an n-tier architecture consisting of:
 - a) An SQL-92 compliant relational database for data collection
 - b) A server-based middleware application logic system
 - c) A server-based web services data delivery system
 - d) An end-user interface able to be displayed using a W3C standards compliant web browser
 1. The browser shall not rely on the use cookies for state management
- 6) Reduce the paperwork load for OPI staff
- 7) Allow for the integration of collection systems
- 8) Allow phase-in capabilities as needed

- 9) Maintain historical records
- 10) Have the ability to track/move students from one district to another
- 11) Have the ability to store student data to disk for transfer out of state
- 12) Have the ability to transfer documents to non-system users
- 13) Have the ability to roll up data from the district to the state level (OPI must be able to tap in from their offices)
- 14) Provide the following reporting functions:
 - a) Report generation must include both static and ad-hoc report generation
 - b) Report access privileges must be implemented through the security model
 - c) Reporting functions must provide for cell suppression to provide for confidentiality of students in small data sets.
 - d) Ad-hoc report generation features must make custom data elements available for inclusion in reports
 - e) Reports must track student records across multiple schools or districts
 - f) System is capable of exporting all reports to a comma delimited or line delimited ASCII file, RTF format and HTML format.
 - g) System allows the user to modify standard reports to include or remove fields and save these report definitions for future reporting.

B.) Quality Assurance Functions

- 1) The application will provide statistical reports of the system for monitoring and audit purposes

C.) Data Validation & Verification

- 1) The application shall have processes to check if each data entry form is complete prior to submittal
- 2) Automated validation & verification functionality is required
- 3) System must flag potential data integrity issues so that data can be verified
- 4) The system will have the ability for multiple users to be updating the same record simultaneously without overwriting the other user's changes.
- 5) The systems shall have procedures to allow modification of data without losing related data. For example, allow changing a student identification number without deleting all of the student's information

D.) Web Forms:

- 1) The capability to submit data through web forms is required
- 2) The web forms and images must load in a reasonable time frame on a workstation with a connection as slow as 28.8 KB.
- 3) Provides work-in-progress capability (i.e., partially completed forms can be saved for completion at a later time if work accomplished meets minimal validation criteria)
- 4) The system should have a web based form generation capability that would allow the creation and modification of forms by users with the appropriate privileges.

Technical Environment:

E.) General Data Base Informational Requirements

- 1) The database will reside in the data center at OPI
- 2) The database must be Microsoft SQL Server on Windows 2000 or Windows 2003
- 3) The database must support at least 150,000 enrolled students and 66,000 teacher records along with historical data of at least five years post exit (to allow for IEP historical data).

F.) Data Elements:

- 1) Data elements described in the IEP and SIS sections below should also be included
- 2) Custom data elements must also be supported
- 3) An administrative web form to allow for creation, modification and deletion of data elements is required

G.) Security:

- 1) The Security Model must provide access controls, rights, and privileges based on users groups and roles for all data and forms in the system.
- 2) The system must provide an audit trail of user access to the application and forms
- 3) A web-based administrative function is required for managing users and their passwords, access controls, rights and privileges.
- 4) The system must implement safeguards required by FERPA and HIPPA, including the secure transfer of electronic records

Data Warehouse Requirements:**Summary:**

The Montana Office of Public Instruction (OPI) has identified the need for a Data Warehouse (DW) that would be used to improve the analytical and reporting capabilities required by OPI. Initially, the primary functions of this DW would be to improve the efficiency and accuracy of student records. In addition, OPI requires that the DW will provide data mining capabilities that will be used for creating, tracking, and assessing Montana education policy.

The primary requirement for the DW will be for the collection and utilization of student information at the state level. However, a secondary goal is to have a DW that will either integrate directly with a school management system (SMS) and Individualized Education Plan (IEP), or be part of a centralized solution that provides the SMS, IEP, and state DW functions.

A.) Reporting Functionality:

- 1) The Data Warehouse must provide support for Montana State Education Reporting including but not limited to:
 - a. Statewide Student Assessment
 - b. School Enrollment
 - c. Dropout and Graduation Data
 - d. Federal Reports to National Center for Education Statistics (NCES)
 - e. National Assessment of Educational Progress (NAEP)
 - f. Full-time Equivalent (FTE) Staff Data
 - g. Census Mapping School District Boundaries
 - h. No Child Left Behind (NCLB)
 - i. EDEN
 - j. IEP
 - k. School Discipline
 - l. Vocational Education
 - m. School Foods
 - n. Early Intervention Report

- 2) **Interactive Reporting:** Interactive reporting is a major component in the set of user tools to be provided by the Data Warehouse. A report request and display procedure that allows day-to-day use by administrators to access and analyze their pertinent student data is essential. This procedure should be able to:
- a. Allow the user to access his/her data with a minimum of complicated mouse or keyboard actions. Selection of report type/content from menu structures would be a typical technique
 - b. For appropriate report results, the data should be available as graphic representations such as histograms, bar charts, pie charts, etc.
 - c. All levels of reports generated should be printable on the local or networked printer.
 - d. The reporting functions shall provide the ability to direct the report to email
 - e. Data that match the report criteria should be exportable into Excel or other system-standard format for further analysis, such as with SPSS or SAS
 - f. Provide a detailed list of the report templates and formats available in your Data Warehouse system
 - g. In addition to these available report templates, the ability of the user to define and save a variety of report types with a 'report generator' tool would be important. Student testing and demographics rosters, and crosstab formats counting 'xxx' vs. 'yyy', would be examples of report types. These user definitions should be savable in user libraries for subsequent access. Since interactive reports are so important, indicate in detail your Data Warehouse Systems capabilities in this area
- 3) **Ad-hoc Data Analysis (OLAP):**
- a. Data parameters need to be easily understood and selectable, and the reporting structure should be uncluttered and highly readable
 - b. The limits on the numbers of row and column dimensions, if any, should be high enough so as not to restrict the potential complexity of the reported data.
 - c. In addition to the typical counts and totals for the measures in the body of the cube, descriptive statistical calculations will be necessary. Since much of the analysis will be done with performance measures, means, medians, standard deviations, min, max, NCE, row/column/total percents and percentiles are all examples of calculations required. Other statistical calculations such as zscores, correlations, ANOVA, and t-tests would be required
 - d. The row/column dimensions and the associated measures need to be easily selected from the DW domains
 - e. Filtering techniques to specify data selection need to be intuitive and easy to use
 - f. Data structure and presentation should be modifiable by straightforward row/column drag-and-drop. Addition and deletion of row/column dimensions should also be easily accomplished while defining the report structure
 - g. Cube definitions developed by the user need to be savable in a library for future use.
 - h. Be able to incorporate local, non-DW System data files (e.g., classroom, building, district, or Co-op data) within the Dimensions and Measures by ODBC, OLEDB or otherwise. This may require running the OLAP tool on the client machine with data downloaded from the DW System

Student Information System Requirements:

Summary:

The OPI is seeking a centralized student information system (SIS). The system must be a comprehensive, integrated, full featured system designed using a web-based architecture. The OPI will use the system to improve efficiency in collection and analysis of student information. Many stakeholders will use the system and have various levels of access. This system will make data collection, analysis, archival and reporting more efficient and standardized. The OPI's preference is to have one system that includes both SIS and IEP functions. Separate systems will be considered if there is the ability to easily transfer data between the systems. However, preference will be given to those proposals with an integrated system.

The IEP function will assist in the documentation and reporting of special education student information through the use of an integrated database management system. The system will manage student and staff information, streamline the process of referring students for comprehensive educational evaluation, document decisions made during the Child Study Team (CST) meetings, develop and maintain individualized education program (IEP) as well as additional documentation for students receiving special education and/or related services, and allow for a well-defined, efficient method of exchange of data between the application and state and federal entities. The system will allow local as well as state personnel to perform and document quality assessment on the completeness and correctness of IEP information.

Background:

Currently approximately 40% of Montana students are in schools without a SIS. In the 2003-2004 school year Montana had 56 K-12 districts, 105 combined elementary (joint board), 105 combined high school districts (joint board), 173 single districts (168 elementary; 5 high school), 2 state-funded districts, and 10 non-operating and annexed districts for a total of 450 school districts. The number of public school districts usually changes annually as a result of school reorganization.

General Requirements:

- 1) The Student Information System must be able to generate unique student ID's.
- 2) The SIS must allow for data importation from manually generated and electronically transmitted reports.
- 3) For those schools having a SIS, data will need to be extracted from the SIS and submitted to the state-level SIS through an electronic file following a standardized format.
- 4) The system shall allow student records to be transferred from school to school and district to district.
- 5) SIS data elements shall include, as a minimum:
 - Statewide Student ID
 - First, Middle, and Last Name
 - Birth Date
 - Gender
 - Grade
 - Race/ethnicity
 - Social Security Number
 - School (OPI School Code)
 - District (OPI Legal Entity)
 - Local Student ID
 - User-defined fields for future use

IEP-Specific Requirements:

Background: The IEP will assist in the documentation and reporting of special education student information through the use of an integrated database management system. The system will manage student and staff information, streamline the process of referring students for comprehensive educational evaluation, document decisions made during the Child Study Team (CST) meetings, develop and maintain individual education plans (IEP) as well as additional documentation for students receiving special education and/or related services, and allow for a well-defined, efficient method of exchange of data between the application and state and federal entities.

The system will allow local as well as state personnel to perform and document quality assessment on the completeness and correctness of IEP information. It should allow IEP records to be transferred from school to school and district to district. The system should manage the workflow for IEP so that teachers know when to review, complete, and report IEP information. Teachers and administrators will access the information from any internet-enabled computer. From their computers, they may print, download, report, or transfer records. User access is audited and role based.

A.) Student Information

- 1) Must have the following identifying characteristics, as a minimum:
 - Parent/guardian name
 - Parent/guardian address
 - Home phone
 - Work/Cell phone
 - Case manager
 - Setting of service
 - Service plan
 - Disability (ies)
 - Limited English Proficiency Status
 - Transition services
 - Initial referral date
 - Next 3-year comprehensive reevaluation due date
 - Date student began receiving special education services
 - Date student exited or transferred from special education program
 - Exiting code
 - Private school students receiving special education services
 - Medicaid information
 - Review access
 - Special Ed Co-Op (OPI Legal Entity)
 - User defined fields for future use
- 2) All data needed to complete all forms listed in section C below
- 3) Goals - with the ability to develop and/or save for favorites
- 4) Therapy notes for related service providers (e.g., OT, PT, Speech)

B.) Reports - The system must have the following pre-defined reports:

- 1) Communication log
- 2) Document time spent
- 3) Demographic reports
- 4) Due dates (IEP, CST) and notification reports
- 5) Access log
- 6) Progress reports
- 7) Caseload information per case manager
- 8) Child count
- 9) Exit report
- 10) Setting of Services
- 11) Referral report- student qualified or not
- 12) Confidential file notification for Cumulative Record File

C.) Forms

- 1) The system must be able to archive the forms for permanent storage (e.g., data is locked from further modifications)
- 2) The system must be able to pre-fill forms using data that exists in the IEP system or the OPI data warehouse
- 3) Some fields must be able to be locked so that they cannot be pre-filled
- 4) Required forms include:
 - a. Child Study Team (CST)
 - b. Individualized Education Program (IEP)
 - c. Performance Summary
 - d. Amendment of current IEP
 - e. Graduation form
 - f. Meeting notice form
 - g. Transfer of Parental Rights notice - Parents
 - h. Transfer of Parental Rights notice - Student
 - i. Progress Reports
 - j. Criterion Reference Test (CRT) Eligibility Criteria Worksheet
 - k. Eligibility Criteria Checklist
 - l. Private School Service Plan
 - m. Individual Health Care Plans
 - n. Accommodations form
 - o. Transition meeting form notification
 - p. Evaluation Plan
 - q. Excusal form
 - r. Referral form
 - s. Review of existing evaluation plan
 - t. Aversive treatment
 - u. Transportation form
 - v. Manifestation Determination Form
 - w. Other User-Defined Forms

D.) Application functions

The application should:

- 1) Manage the workflow for IEP so that teachers know when to review, complete, and report IEP information.
- 2) Include a confidential file notification for Cumulative Files
- 3) Include a general notification of meetings
- 4) Include a method to notify persons who should be invited to IEP meetings
- 5) Keep track of contacts
- 6) Keep date logs of changes to data and date forms are completed

E-Grants Management System:

Background:

The OPI administers over 2000 projects with approximately \$130 million for about 500 LEAs. In the 2003-2004 school year Montana had 56 K-12 districts, 105 combined elementary (joint board), 105 combined high school districts (joint board), 173 single districts (168 elementary; 5 high school), 2 state-funded districts, and 10 non-operating and annexed districts for a total of 450 school districts. The number of public school districts usually changes annually as a result of school reorganization.

The E-grants system will enable school districts to access notices of grant availability and eligibility, apply for grants, plan and submit grant budgets, report relevant statistics related to grant performance requirements, request grant payments, access status reports, send and receive communications from OPI staff related to the grants and grants processes, and send information and reports needed to closeout grants for school districts to systematically and consistently submit grant applications electronically to the Montana OPI.

A.) General Requirements:

- 1) Facilitate control of program eligibility for a specific LEA or vice versa, those LEAs eligible for a specific program
- 2) Capture and maintain contact information for each program in each LEA (name, address, e-mail address, and phone number)
- 3) Reduce the agency processing time for payment request and carry over approval
- 4) Must facilitate automated work flow, including e-mail notifications
- 5) Accommodate projects that overlap fiscal years, such that a grantee may have multiple projects of the same grant operating at one time (e.g., Title IA project for FY 05 and the Title IA project for FY 06)
- 6) Must support on-line data entry, inquiry and updates.
- 7) Allow integration of goals and strategies using various grants and projects (i.e., the user can see the big picture of all grant activities)
- 8) Supports a common “look and feel” across all grant applications
- 9) Provides approval and monitoring capability for state level users or other designated offices

B.) Grants Application/Allocations:

The e-Grant system must provide the capability to:

- 1) Input grant name, alias, and identifying information such as CFDA#, Federal or State grantor agency, etc.
- 2) Create sub-grants and designate competitive or formula
- 3) Allow for OPI entry and update of instructions by grant that can be easily accessed by district users
- 4) Generate application budget template and carry over rules.
- 5) Calculate allocations
- 6) Import potential grantees, allocation amounts/grant range
- 7) Provide an internet-based grant application process that supports application initiation, completion, submission, review, approval, and amendment processes
- 8) Provides web-based application pages that can be dynamically updated with entries in a database without having to make coding changes
- 9) Calculate carry-over funds

C.) Transfer funds and fill out applications

The e-Grant system must provide the capability to:

- 1) Transfer and redirect funds between grant projects, within specific limits and criteria
- 2) Download application work file
- 3) Upload one or more version of completed word file application
- 4) Complete budget template, submit to OPI, and allow subsequent budget modifications
- 5) Track application submissions and approvals and show history

D.) Review Applications

The e-Grant system must provide the capability to:

- 1) Electronically facilitate the approval and amendment process of each of the submitted grant applications
- 2) Download completed budget applications which may be in a MS Word.doc format or an Adobe PDF
- 3) Allow for edits of budgets
- 4) Track by date questions to LEA contacts
- 5) Approve entitlement narratives, budgets and grants
- 6) Allow for scoring competitive grants either with group consensus or average
- 7) Generate award

E.) Check Review Status

- 1) The e-Grant system must provide the capability to let the users review the status of each grant that they are eligible to receive. Status should show whether the narrative has been downloaded, the application has been completed; it has been approved for submission.
- 2) Amendments are tracked and approved on-line

F.) Request Payments

The e-Grant system should provide the capability to:

- 1) Access budget template and available balance
- 2) Request transfer of funds between line-items
- 3) Request payment by line-item up to 100% of total
- 4) Interface with the State of Montana Accounting and Budgeting System (SABHRS)

G.) Process Payments

The e-Grant system must provide the capability to:

- 1) Provide on-line calculation approval and scheduling of payments (also support manual payments)
- 2) Allow for payments based on schedules, reimbursements requests (claims), or a hybrid of both
- 3) Require that applications pass edits before submission to ensure they meet completion requirements
- 4) Approve and upload for electronic payment
- 5) Interface with the State of Montana budgeting system (SABHRS)
- 6) Allow for temporary withholding of one or all payments by grantee

H.) Monitor for Compliance

The e-Grant system must provide the capability to:

- 1) Print field reports
- 2) Allow OPI to input recommendations, list required corrections, and track the completion of them

I.) Approve Carryovers

The e-Grant system must provide the capability to:

- 1) Send notifications
- 2) Generate a report of unspent funds not included in carryovers
- 3) Make supplemental awards

J.) Expenditure and Program Reporting

The E-grant system must provide the capability to:

- 1) Allow for LEAs to report expenditures by summarized budget categories
- 2) Allow for final expenditure report and approval process with multiple levels of approval
- 3) Provide methods of notification that advise applicants when OPI approves or disapproves the final expenditure report or amendment